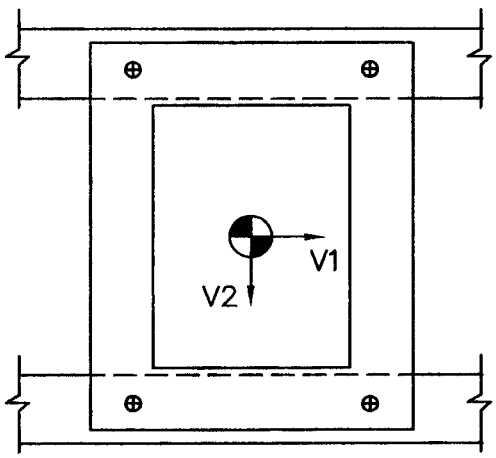
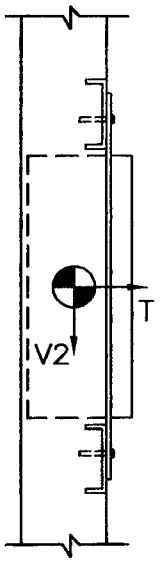
| FIROUZI CONSULTING ENGINEER, INC. | | |
|---|---|---|
| SKYTRON SURGICAL PRODUCTS | DES. | SHEET |
| STELLAR SERIES - WALL CONTROL UNIT FOR SEISMIC ZONE (4), SOIL PROFILE (Sd) NEAR SOURCE FACTOR = 1.5 | FCE JOB No.<br>DATE: 6-22-04 | 1<br>OF 4 SHEETS |

# SEISMIC ANCHORING BOLT DESIGN
## WALL CONTROL UNIT

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REGISTERED PROFESSIONAL ENGINEER
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No. 2798
STRUCTURAL
STATE OF CALIFORNIA

RENEWAL FEE DUE DATE: 06-30-06

NOTES:

1. SCOPE OF WORK: DESIGN OF BOLTS CONNECTING MOUNTING PLATE TO STRUCTURE ONLY.

2. FORCES ARE DETERMINED PER 2001 CALIFORNIA BUILDING CODE – SECTION 1632A, (INCLUDING UP TO DATE REVISIONS) AND HAVE BEEN FACTORED TO REPRESENT WORKING DESIGN LOADS, NOT ULTIMATE

3. ENGIINEER OF RECORD TO VERIFY STRENGTH OF VARIOUS COMPONENTS OF EXISTING STRUCTURE TO SUPPORT THE INDICATED LOADS AND TENSILE AND SHEAR CAPACITIES OF ANCHORING SCREW IN THOSE COMPONENTS.

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DESIGN CRITERIA:

FORMULA 32A-1: $F_P = 4.0\ Ca*Ip*Wp$

TABLE 16A-Q : $Ca = 0.44*Na = 0.44*1.5 = 0.66$ ( For zone 4 & $S_D$)

TABLE 16A-K : Ia = 1.5 ( For essential facility)

$\therefore F_P = (4.0)(0.66)(1.5)Wp = 3.96\ Wp$ (For LRFD)

$F_P = 3.96Wp/1.4 = 2.83Wp$ (For ASD)

FORMULA 30A-1: $E = p*E_h + E_v$

$E_h = F_P$

p = 1.0 (FOR COMPONENT)

$E_v = (0.5)Ca*Ip*Wp$

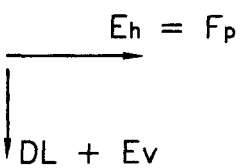
$= (0.5)(0.66)(1.5)Wp = 0.5Wp$ (For LRFD)

$= 0$ (For ASD)

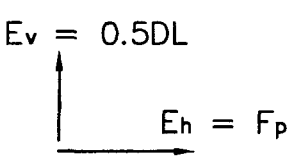
SECTION 1630A.11: $E_v = (0.7)Ca*I*Wp$

$= (0.7)(0.66)(1.5)/1.4 = 0.5Wp$ (For ASD) [NET UPLIFT FORCE]

LOAD COMBINATION CASE A




LOAD COMBINATION CASE B




BY COMPARISION LOAD, COMBINATION A GOVERNS

Ev : Vertical Seismic Load
Eh : Horizontal Seismic Load

DL = 45#

SHEAR:

V1 = Ev = 45*2.83 = 127.4 #

V2 = Vd + Eh = 45 + 45*0.5 = 67.5 #

S = (127.4 ^2 + 67.5 ^2) ^0.5 = 144.2#

v = 144.2 /4 = 36.1 # / SCREW

TENSION:

T = Ev = 45*2.83 = 127.4 #

t = 127.4 /4 = 45*2.83 /4 = 31.8 # / SCREW

USE 4-#12 TEK SCREWS